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ABSTRACT

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A RENOVATION AND CONVERSION ALTERNATIVE TO OVERCROWDED FACILITIES AT WILMINGTON HIGH SCHOOL

By: Derek R. Little

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PREFACE

This practicum effort involved a great many people who either were or they became convinced that there was a solution to a very difficult problem of providing additional instructional space at Wilmington (Massachusetts) High School that didn't require the expenditure of millions of dollars. Their contributions to the success of the project were enormous and, unfortunately, too numerous to cite here individually.

The writer wishes to thank all the members of the Task Force Advisory Group for their spirited participation and their dedication to the difficult work. Their endurance astounded all who came in contact with the project.

The writer is particularly indebted to Wilmington's Superintendent of Schools, Dr. Walter H. Pierce, for his encouragement and unfailing support, and to the High School Principal, Dr. George O. Eisenberg, for his sincere helpfulness and cooperation. The writer's tasks were made notably easier, and the chances of success for the program were increased immeasurably by the participation of these two gentlemen.

CHAPTER I

STATEMENT OF THE PROBLEM

The need for classroom space at Wilmington (Massachusetts) High School had been well established. The recorded growth of the community population during the period from 1950 through 1970 was forty-one percent and the schools were straining to meet the challerge. The elementary school building program had kept pace during the two decades indicated but the situation at Wilmington High School became critical as the expanded school population funneled into the single four-year facility in the geographical center of the town.

It seemed to school officials back in the fall of 1972 that effective reductions in school populations being predicted nationally and statewide were a myth as far as Wilmington's problems were concerned.

The existing high school had been built in four separate stages over a period of twenty years. Each addition had been a response to an imminent crisis in student growth which the townspeople perceived, at the time, as being the final stage of expansion. As a result, the building solutions had been reactionary with little regard for the long-range effects on the coordination of the total educational capacity of the facility.

During the same period of two decades, education in Wilmington, as elsewhere in the nation, underwent the inevitable shifts in emphasis that seem to emerge every fifteen or twenty years. The period of basic education gave way to the growth in vocational industrial programs which, in turn, succumbed to the development of the comprehensive high school, which was channeled, after Sputnik, into the development of prominent programs in mathematics, science and foreign languages. The rise in humanistic education programs followed so that by the late sixties schools were again heavily promoting the arts, humanities, and the "whole child." The schools, as always, reflect the desires and needs that are perceived by the social order of the period, and Wilmington became deeply involved in a values clarification curriculum along with a reemphasis on programs for the troubled general student. Since 1973, the mythical "pendulum" has been returning to a more conservative position which is reflected in the ubiquitous cry that education go "back to basics." This reaction is demonstrated in a variety of tangible events including recent school board elections, the emergence of the concern for accountability, and the repeated defeat of school bond issues all over the country.

During these periods of staggered growth in the Wilmington facility, several important changes took place. Standard classrooms were taken over and converted into art rooms and other specialty areas. Art rooms were made into science labs. Science labs were later converted to industrial

arts shops because they were found to be in poor proximity to the other science rooms. The relocated science labs displaced the larger art rooms, in a complete reverse, because the art rooms had the only reasonable access to appropriate amounts of water, gas, and electricity. Art then went to the home economics area which was on the ground floor and allowed for the installation of bottled gas. In succession, home economics displaced business education which forced the music department to the auditorium for its chorus and band work. In the process, a standard classroom here and there was assimilated by the growing need for support space, thereby fragmenting academic departments and increasing the need for immediate and local storage. And so it went. This description is, of course, condensed and may lack some minor chronological accuracy but it should not be considered to be an oversimplification.

Two other events took place in the period from 1950 to 1970 which had a profound impact on school buildings everywhere. One of them is still in the growth stage. First, the post World War II "baby boom" and the succeeding growth in the size of the American family that continued through the late sixties forced a strain on educational housing that, when coupled with the rapidly expanding curriculum of the same period, created a calamitous situation for educators and taxpayers alike. This led to the aforementioned reactionary solutions. Wilmington, like many other Massachusetts communities, had sprung

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from rural beginnings and it was not prepared for the onslaught. A revised State monograph on the town that was published in 1974 states: "During the decade of 1955 to 1965, the population of Wilmington increased by 5,853 or 62.2%. There was an estimated excess of births over deaths of 2,531. During this same period there was an estimated net in-migration of 3,322 persons."[1]

A brief discussion of the history of rural Wilmington and the recent growth to its present economic base will serve to demonstrate the reasons for the inability of the citizenry to comprehend the wisdom of a realistic long-term solution, and the resulting need for this practicum. Figures used in this discussion were gathered through several interviews and discussions that the writer had with present and past town officials, and from data supplied by the local Chamber of Commerce.

Wilmington was originally settled in 1639. It was formerly within the limits of old Charlestown Village. Because of the distance to the meeting house, the General Court was petitioned to incorporate the area into a separate town. By this time, the area was part of Woburn and was called Goshen until in 1730, after an earlier denial, the General Court passed an act incorporating parts of the territories of Woburn and Reading (then Redding) into a town to be called Wilmington (see appendix A). Early settlement was for

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[1]Massachusetts Department of Commerce and Development, City and Town Monograph, Town of Wilmington (1974), p.3.

agricultural land and agriculture was dominant here until the recent past. The population, almost exclusively farmers, was small and scattered. The early agricultural products centered on three crops--cranberries, apples and hops. The development of the lowland with its sandy soil into cranberry bogs greatly enhanced land values and Wilmington, for a time, became the principal cranberry growing locality in a wide area. It was here also that the famous Baldwin apple was first developed. For many years, ice was harvested from the town's major lake. Manufacturing development was limited and came late. For a long period of time, a tannery was the only substantial manufacturing industry in the community.

Today, Wilmington is fundamentally a residential town with a working population, most of whom commute to surrounding communities. In 1970, a total of 235 firms reported to the Massachusetts Division of Employment Security. These firms reported payrolls of $80,178,805 and average employment of 8,399 persons. Employment and payrolls were almost tripled in 1958 by the advent of Research and Advanced Development of Avco Corporation which is classified in the service industry.

In 1971, thirty-seven manufacturing firms reported an annual payroll of $30,274,716 and provided work for an average of 3,335 persons. Among the principal firms are: Compugraphic Corporation, photo typesetting machinery; General Electric Company, aerospace instruments; Photon, Inc., type composition machinery; Smithcraft, Inc., flourescent lighting fixtures; Sweetheart Plastics, Inc., plastic dishes; and Wheeler

Lighting, lighting fixtures.

In 1971, sixteen wholesale firms employed an average of 759 persons with an annual payroll of $5,300,902; while there was an average of 872 retail trade employees earning $4,476,517 in sixty-nine firms. Retail trade establishments were mostly small and of the type serving the immediate needs of local residents.

The second event that began during the late fifties and is still impacting school buildings today is the unprecedented growth in educational technology, particularly in terms of hardware. Standard school hardware has grown from a few record players, movie projectors and tape recorders to an impressive assortment of audio visual items including overhead projectors, opaque projectors, filmstrip projectors, multi-media learning packages, reproduction equipment, television receivers and studios, individual cassette recorders, video-tape decks and sophisticated computers with multiple terminals. Bigger and more versatile typewriters are now standard, and spacious copy centers with sophisticated information retrieval systems are commonplace in the modern school system. Most school buildings built prior to 1970, including those here in Wilmington, were not designed by architects or educators who anticipated the enormous demand for storage space. The technology of miniature circuitry, mass production, and the resultant decrease in unit prices has allowed schools to acquire huge arsenals of hardware which can be assigned to each department. But, this equipment is too expensive to

always leave in the back of each classroom. It has to be stored somewhere that provides both security and easy access for teachers. This means that every department has storage requirements that would have been mind-boggling to the educational planners of the fifties. One of the most difficult aspects of this practicum has been attempting to satisfy the individual storage needs that were generated by each successive conversion. A major strategy of the renovation/conversion effort was to turn noninstructional space into instructional space and this has had a considerable effect on the storage capacity.

When the project was initiated, Wilmington High School, which had been designed in stages to accommodate nine hundred students, had an enrollment of 1,391. It housed grades nine through twelve and it was the culminating facility in a school system which additionally included nine elementary schools and two junior high schools.

That enrollment figure of 1,391 had actually been reduced over the previous three years due to construction of a major addition to the Regional Vocational Technical High School which services a five-town region of contiguous towns in the area. Little comfort was being derived from the fact that a downward trend in enrollment was developing. Since the facility was operating so much in excess of rated capacity, any predicted decline in terms of a few students a year would do little to alleviate the critical situation.

Over the previous six years various proposals for new construction had been put forth by several school administrators (including the writer), school committees, and building committees. Several proposals for grade reorganization and realignment had been discussed and considered. All of those proposals and plans, which had been designed to relieve a general systemwide condition of overcrowding with an immediate emphasis on the critical situation at the high school, had been rejected by the voters at several Town Meetings. A variety of reasons undoubtedly contributed to the continued rejection of building proposals, including the general state of the economy and an increasing regional unemployment. Nevertheless, the problem of overcrowding was very real for the pupils of Wilmington High School, and it would not "cure" itself through any natural process for years to come.

As Assistant Superintendent of Schools in Wilmington the writer was involved in the development of effective instructional programs for all students in the community. Professional responsibilities included the development and supervision of the total curriculum, as well as the organization of instructional facilities and programs for the School Committee and the Superintendent of Schools (see appendix B).

The educational program and the students it was designed to serve were suddenly being affected in some very tangible ways. The prevailing attitude of many school building opponents that "there's always room for a few more" was, by 1976, confronted by some hard evidence which showed that program options

for students were disappearing at an alarming rate. These specific facts illustrated the critical need for a substantive response by both school officials and taxpayers:

A. During the five years from 1971 to 1976, the number of students taking art each year as art majors decreased from 425 to 375. This was because previously existing art rooms had been taken over as "temporary" science laboratories

B. During the period from 1969 to 1975, the number of students taking Food Preparation in Home Economics had remained constant because the single foods room was scheduled at capacity. This was in spite of a ten percent increase in student requests to get into the program over the same period

C. During the period from 1969 to 1975, the number of students admitted to graphic arts had remained constant despite the tremendous growth in enrollment after 1966. The same was true for all industrial arts programs which had limited maximum enrollments for safety reasons. Since sixty percent of all Wilmington High School graduates do not go on to college, this restriction in terms of general education programs was intolerable

D. Twenty-six students who wished to take individual instruction in music during the 1975-1976 academic year had been denied admission into the regular day program because there was no more room available for individual teaching

E. Four sections of large group instruction in music (chorus and band) could not be held in the music room during the 1975-1976 academic year because of the noise factor which

interfered with classes in adjacent rooms. This had set off a chain reaction because they were reassigned to the auditorium which, in turn, eliminated a prime site for large group study assignments during lunch periods

F. During the period from 1971 to 1976, the number of advanced courses in foreign languages increased from six sections to fifteen sections as Spanish IV and V, and Italian I, II, and III were added. The number of available teaching stations did not increase so that six of those new sections had to be combined

G. In 1976, the seating capacity of the high school library was forty-eight students per period. Approximately twenty-eight percent of the school population could make use of that facility during any single day. For a comprehensive high school such as Wilmington's, which attempts to offer a great many elective and alternative programs, this availability was totally inadequate. The American Library Association recommended that a minimum of twenty five percent of the total student body be able to use the facility during <u>any one period</u>. Wilmington's capacity was considerably below that recommended level

H. With the implementation of the comprehensive Massachusetts Special Education Law (Chapter 766) in 1974, the school department was required to take affirmative steps to provide special services to all youngsters with special needs. This state legislation was the forerunner of the recently enacted Federal Special Education Law (94-142) which mandates similar

programs nationwide. The recommended strategy was mainstreaming, with a variety of support services being provided in resource rooms. The only space available for a resource room at Wilmington High School was a closet. This was being utilized by the special education personnel, along with the adjacent corridor, for small group instruction. Between 1973 and 1976, identified students with special needs had increased from twenty to ninety. So many of those problems were reading related that full implementation of service would require the development of a reading clinic and a full resource room facility

Students were requesting and signing up for courses which were being denied to them because the space that was available had to be reserved for those pupils who were "majoring" in the curriculum area (i.e.: art major, home economics major, industrial arts major, etc.). Exploratory courses were virtually nonexistent.

It was obvious that the town would not build a new school or even consider another major addition to the present plant. It was also obvious that a need existed to do something to expand educational opportunities at Wilmington High School for many students. The only option that appeared to be open was the possibility that some gains could be made through the development of an interior renovation and conversion plan.

CHAPTER II

OBJECTIVES

The purpose of this practicum was to illustrate and direct one option, that was open to appropriate decision-makers, to provide more usable educational space at the high school. To fully achieve the state of conversion that would ultimately satisfy the needs of the community on a long-range basis would require a three-year project. This introductory practicum effort was concerned with only the first phase which, in effect, was designed to "show the way". The School Committee appropriated $75,000 to finance the first-year activities, and the organizational work began.

The following specific program objectives were established for this practicum:

1. By the completion of the practicum period, the participant would produce a planned educational alternative for Wilmington High School in written form that would demonstrate increased capacity to admit students in a minimum of five educational/curriculum areas. The increased capacity would range from three percent to twenty percent of the individual subject enrollment as of September 1, 1975.

2. By August 31, 1977, the participant would produce a written plan which would demonstrate a method of reducing the impact of overcrowded enrollment through the reorgani-

zation and conversion of a minimum of three noninstructional areas into instructional areas. The reduction would be measurable in terms of enrollment figures for September 1, 1977, as determined by the individual section enrollments for the three curriculum areas involved, with the reduction range designated between three percent and ten percent for each program effected.

3. By July 1, 1977, the practicum participant would produce a written master student schedule for the 1977-1978 academic year at Wilmington High School and submit it to the School Committee to consider for future continuation. This development and production would be directed and coordinated by the practicum participant, with support from the Building Administration and Data Processing Department, and it would demonstrate enrollment increases of from three percent to ten percent in at least two curriculum areas effected. Said student master schedule to be addended to the Practicum Report.

In addition, the following process objectives were established for this practicum:

1. Upon completion of the third practicum month, a task study group would be formed under the direction of the practicum participant to assist in the development of the plan. This study group would be strictly advisory in nature and it would represent an important cross-section of people affected by the program. The role of the task study group was to provide input and support for the project to the larger staff.

2. Upon completion of the fifth practicum month, at least three possible curriculum conversion areas would be identified and preliminary written plans and drawings would be initiated to develop cost requirements for materials.

3. Upon completion of each practicum month, appropriate progress reports would be submitted to the various interested and necessary parties, including the Superintendent, the Administrative-Supervisory Staff, the School Committee, and the public.

4. Upon completion of the eighth practicum month, following at least five meetings of the task study group, drawings and detailed plans for the chosen alternatives would be developed and renovation schedules prepared.

5. Upon completion of the ninth practicum month, the teaching staff would be informed about definite renovation/conversion plans and, if necessary, trained to accommodate the projected changes to the curriculum they teach.

6. Upon completion of the ninth practicum month, materials would be ordered and appropriate work contracts let out in order that major renovation work could be carried out during the tenth and eleventh practicum months.

CHAPTER III

STRATEGY

Review of the Literature

A great deal of material has been written in the field of school construction which, at first, appeared to be relevant to the problems addressed by this practicum. Most of the literature available, however, deals with such topics as new building construction; developing educational specifications; generating support for local bond issues; and debates on various organizational philosophies, such as traditional vs. open education, etc. Very little was available on renovation or conversion programs that could be applied to the task that was set for the writer. Each conversion project is so highly individualized, because the existing structures are all so different and the outside influences so variable, that it is nearly impossible to determine appropriate commonalities.

The search of the literature conducted by the writer was to assist in the development of a strategy for the renovation/conversion project. Specifically, the search was to:

1. Identify relevant research about renovation/conversion projects in other states

2. Identify major information resources concerning this topic around the country

3. Identify related projects and studies

4. Identify and communicate with key local personnel in Massachusetts and area school systems involved with similar problems

5. Identify innovative models of resource delivery and expansion of educational opportunity at the high school level

The search included an assessment of thirty-three ERIC, AIM and ARM files, the National Technical Information System (NTIS), as well as a study of prominent alternative renovation/conversion programs in several other states. These states included Connecticut, Georgia, New Hampshire, Rhode Island, and Virginia.

Interestingly enough, this writer found the most useful information in previous Nova practicums which dealt with some related components of this problem. One particularly helpful report by Edwin R. Casey and others, in Atlanta, Georgia described a model for reorganization of traditional school facilities. Their goal was individualized instruction, while this writer's was additional space and expanded educational opportunities, however some parallels could be noted.

> Renovations and additions have always been an important part of annual school outlays, constituting in the past few years almost one-third of the total educational construction dollar volume. The emphasis, however, has been on replacement and repair of equipment and materials and on updating to meet safety codes . . . It is predictable that . . . much greater

> emphasis will be spent on making our out-moded buildings serve new educational standards.[2]

Renovation and/or conversion had been tried before, of course, but it was usually not reported as the best or most attractive solution. It appeared, in most cases in the literature, to have been the course of action settled on after other remedies had been considered and rejected.

> Most schools remain traditional in design and in the program offered. Two factors make it particularly difficult to effect change: (1) hesitancy on the part of communities to support innovative programs, and (2) growing resistance to spiraling construction costs. Therefore, an overwhelming case can be made for continuing to use existing serviceable school plants by making alterations.[3]

Defining The Alternatives

Aside from the possibility of a major capital improvement program involving new construction, the community did have three options available to deal with the problem; none of which required any renovation/conversion. They were:

1. An elimination of all elective courses
2. Another daily school organization involving "double sessions"
3. An extension of the school year to one of the "year-round" plans

The elimination of elective courses would have been a recognition of what was actually happening anyway as course offerings were reduced. The slow erosion of opportunities

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[2]Edwin R. Casey and others, Developing A Model For Reorganizing Traditional School Plants For Individualized Instruction, pgs. 4-5.

[3]Ibid, i.

for students was being felt in many areas as explained earlier. The community could have taken the position that, while it recognized a problem existed, the solution was to "live with it". Life is full of choices, and students will survive whether the educational options open to them are few or many. Large sections of a few basic studies would require little movement in the building, and it would be easier for the administration to "keep the lid on" anyway. Fortunately, this option never received serious consideration, mainly because the students were pushing for a more positive educational solution in their discussions at home.

Involvement of the School Committee

The Wilmington School Committee was involved with this plan from its inception. As stated above, the Committee had advanced and considered several construction alternatives over the years and it was as anxious to find an acceptable solution to the space problems as anyone in the community. So, when this writer presented the renovation and conversion plan the Committee viewed it thoughtfully.

A complete renovation and conversion plan, if taken through to its logical conclusion by the Committee, would have required three years with a total estimated financial outlay of $225,000 over the same period. The financial commitment from the Committee could only be anticipated on an annual renewal basis, however, since at least one-third of the school Committee members are elected or reelected each year. This introductory practicum considered only the initial phase of a total

plan; and it dealt only with those events and portions of the project that could be designed, directed, and completed within the first year. To implement the initial design to be developed for the first year, the School Committee authorized that an amount of money not to exceed $75,000 be allocated to the Fiscal 1977 school budget. The Committee would, undoubtedly, have to be satisfied with the progress before approving any action involving succeeding annual steps.

It might serve as a follow-up point for the reader to note that, as this report is being written, the high school is nearing completion of a second phase of conversion utilizing additional funds provided by the school committee as part of its on-going effort. This, perhaps more than any other indicator, attests to the Committee's satisfaction with this phase one practicum effort.

CHAPTER IV

EXECUTION OF THE PRACTICUM

The official October 1, 1975 enrollment figures showed the enrollment of grades nine through twelve at Wilmington High School to be 1,417 students (see appendix C). The actual enrollment count, with adjustments made for the October 1st absences, showed the students to be initially scheduled in nine critical departments in varying degrees of crowdedness. Table I shows the student breakdown by curriculum department as well as the number of sections in each area.

This breakdown illustrates that, with the exception of social studies, the average class sizes were distributed comfortably within what is considered to be manageable by most secondary education observers. There would appear to be few problems from overcrowding if one were to accept the initial class average figures at face value without searching for the reasons behind the spread. The real problem lies in the large numbers of students who are not assigned to the above sections during any given period, but who filter into physical education, music or study halls. Due to the limited number of available teaching stations in many of the specialty areas the educational opportunities for students to enroll in some of the enrichment programs necessitated closing off the course

TABLE 1

WILMINGTON HIGH SCHOOL ENROLLMENT
BREAKDOWN BY DEPARTMENT
SEPTEMBER 1, 1975

Enrollment Classification	Eng.	Math.	Sci.	Soc. Stud.	For. Lang.	Bus. Ed.	Art	Home Econ.	Ind. Arts
Total Enrollment	1428	1003	670	1274	640	752	277	286	229
No. of Sections	73	49	35	47	34	42	15	23	18
Average Per Class	19.5	20.5	19	27	19	18	18.5	12	13

at a number that could be handled by the facility. It was disturbing, for example, that out of 1,428 students only 670 (forty-seven percent) were enrolled in science courses. Only 277 (nineteen percent) took art, and only 515 (thirty-six percent) were involved in the homemaking and manual arts programs combined.

A plan was then developed in the spring and summer of 1976 which committed the initial thoughts on renovation to paper, and these were transmitted to the School Committee at budget review time in memorandum form (see appendix D). The suggested beginning thrust by the writer called upon the Committee to consider:

1. Renovation and updating of the Graphic Arts equipment
2. Renovation and acoustical work in the music room
3. Replacement and restoration of the science laboratory storage and furnishings
4. Development and furnishing of a resource room for special needs students
5. Replacement of some cafeteria furniture
6. Replacement of three to five rooms of classroom furniture
7. Acoustical improvements in the guidance areas

Following an initial approval to proceed from the School Committee along with its preliminary budget allocation, the writer began by forming subcommittees and task groups of appropriate teachers, curriculum directors, and building

administrators to advise and assist in the major plan development. An analysis of the high school course offerings and curriculum objectives was made to see if a renovation plan could be designed to fit the curriculum needs and goals. The purpose of the analysis was to:

1. Determine if all available space was being utilized for instructional purposes

2. Identify ways to eliminate or relocate many noninstructional programs

3. Identify specific content areas that could be equally served by decentralizing certain core facilities

4. Study, consider and make recommendations relative to the relocation of several instructional programs for purposes of curriculum integration

After several meetings, both formal and informal, a planned alternative was presented to the central administration and the School Committee for their consideration. A refined alternative, which included ideas from these advisory groups, was subsequently explained to the public in two fall and winter presentations.

It was decided to concentrate on six important curriculum areas during the 1976-1977 academic year to expand opportunities as much as possible. These areas were art, business education, home economics, industrial arts, music and science.

The first step was to locate and identify as many non-weight bearing interior walls as possible. Three were identified and marked for removal near the areas to be affected.

All of them were on the boundaries of one or more storage areas which, when removed, allowed the instructional area to expand. Storage areas had to be relocated, mainly in the basement areas, but this was deemed a small price to pay for the additional space.

Secondly, utility hookups and delivery was plotted and initiated in key instructional areas that required expansion. Electricity, water, and gas had to be available in all new expansions involving art, industrial arts, and science. This required both materials and labor, the latter being budgeted for on an overtime schedule since much of the work could not be done during the regular school day without unacceptable disruption to the daily instructional program.

Thirdly, major new pieces of equipment which would replace and upgrade what was then in use in the areas of graphic arts and science were put out for bid, purchased, and subsequently installed in the expanded instructional rooms. Some of the equipment was for storage and security purposes, such as cabinets with locks, which allowed for a more orderly and tidy use of the facility.

Finally, new furniture was purchased to replace the old in some key areas. Carpeting and acoustical ceilings were installed, along with new paint and drapes, in selected places for both noise reduction and appearance.

During the period from the inception of the practicum through August 31, 1977, the renovation and conversion plan was developed, revised, and implemented in the general

priorities aoutlined below at the costs indicated:

1. ($35,979.18) Renovation and updating of the graphic arts department; including the building of a new darkroom, the installation of sinks and electrical circuits, as well as the purchase of major new offset press, phototypsetter, and camera plate systems

2. ($5,090) Wall removal and acoustical work in two of the existing science laboratories

3. ($3,000) Utility hookup, including materials and labor, in the expanded science laboratories

4. ($2,674.15) Purchase of an additional "wet" science laboratory island and the construction of new storage cabinets for all science workrooms

5. ($3,738) Carpeting and acoustical work in the music room

6. ($2,775) Carpeting and furnishings for the library, reading clinic, and the resource room

7. ($7,659.36) Purchase of new tables and chairs for the cafeteria

8. ($2,525) Wall removal and additional storage facilities in both existing art rooms

9. ($2,800) Conversion of a custodial storage room to a ceramic work room, including the installation of a kiln, for the art department

10. ($8,638.21) Purchase of additional typewriters, dictaphones, dishwashers, fans, and lathes for the business education, home economics and industrial arts department

respectively

The total expenditure during that period was $74,878.90 which fell within the financial guidelines established by the School Committee.

During the same period, the written master student schedule was developed to show the administrators and school committee members the anticipated advantages of continuing the conversion plan beyond the first stage.

CHAPTER V

EVALUATION

Objective One

By the completion of the practicum period, the participant would produce a planned educational alternative for Wilmington High School in written form that would demonstrate increased capacity to admit students in a minimum of five educational/curriculum areas. The increased capacity would range from three percent to twenty percent of the individual subject enrollment as of September 1, 1975.

Although the objective above calls for increased enrollment capacity in five curriculum areas the reader will recall that the initial effort of the practicum concentrated on six. One important area, namely music, was not moved to a larger facility, but rather to a separate music room with appropriate acoustical treatment. This did not increase the student capacity per se, however, it did allow music classes to come out of the auditorium where they had been previously held. This must be viewed as a key move, since it freed up the auditorium to hold study hall students which were then occupying twenty-six classrooms adjacent to some of the other significant areas. This was a critical component of the total conversion plan since space availability hinged on moving noninstructional functions, such as storage and study halls. The purchase of

new tables and chairs for the cafeteria served a similar purpose because it increased the number of study hall students who could be located in the cafeteria when that facility was not being used for lunches.

The September 1, 1975, enrollment, as shown in Table 1, was the base from which all expansion or conversion was measured. After all of the construction and moving of equipment was completed, the September 1, 1977, enrollment was compared with that of 1975 in five of the designated key areas. Table 2 shows the 1977 figures.

It can readily be seen by comparing the data contained in both tables that the total enrollment in the five designated course areas increased significantly over the two year period. This was accomplished despite a drop in the overall high school enrollment of sixty-two students over the same period. The official high school enrollment figure taken on September 30, 1977, showed the school to be housing 1,355 pupils in grades nine through twelve.

The percentage increase in enrollment for the five critical departments were as follows:

Art	9.3 percent
Business Education	4.6 percent
Home Economics	4.8 percent
Industrial Arts	15.0 percent
Science	18.2 percent

These increases fell within the expansion ranges established in Objective One.

TABLE 2

WILMINGTON HIGH SCHOOL ENROLLMENT
BREAKDOWN BY DEPARTMENT
SEPTEMBER 1, 1977

Enrollment Classification	Art	Bus. Ed.	Home Ec.	Ind. Arts	Science
Total Enrollment	303	787	300	264	792
No. of Sections	16	44	25	20	39
Average Per Class	18.9	17.8	12	13.2	20.3

Objective Two

By August 31, 1977, the participant would produce a written plan which would demonstrate a method of reducing the impact of overcrowded enrollment through the reorganization and conversion of a minimum of three noninstructional areas into instructional areas. The reduction would be measurable in terms of enrollment figures for September 1, 1977, as determined by the individual section enrollments for the three curriculum areas involved, with the reduction range designated between three percent and ten percent for each program effected.

This objective was achieved far in advance of the practicum deadline. As the project developed and progressed it became apparent that the specific recommendations concerning furniture purchase and structural changes would have to be considered and approved prior to the beginning of summer if they were to be completed. On April 27, 1977, a written plan (see appendix E) was presented to the appropriate authorities for their consideration. The proposal contained seven recommendations and involved at least five noninstructional conceptual changes. A minimum of nine individual proposed changes were cited. The school committee subsequently approved the plan and it became part of the renovation and conversion activity.

The September 1, 1977, enrollment figures, as illustrated in table 2, show increased enrollment ranging from 4.6 percent to 18.2 percent in five critical areas. All of these areas,

except home economics, were directly effected by the reorganization of noninstructional spaces. A more significant way of evaluating the plan utilizing the same data would be to note that, of the four areas directly effected, all had a capacity increase which allowed for a percentage increase in the number of available student sections ranging from 4.5 percent to 10.2 percent. This was accomplished, as the reader will note by comparing tables 1 and 2 again, without any significant increase in average class size.

Objective Three

By July 1, 1977, the practicum participant would produce a written master student schedule for the 1977-1978 academic year at Wilmington High School and submit it to the School Committee to consider for future continuation. This development and production would be directed and coordinated by the practicum participant, with support from the building administration and Data Processing Department, and it would demonstrate enrollment increases of from three percent to ten percent in at least two curriculum areas effected to support the renovation/conversion project. Said student master schedule to be addended to the practicum report.

On May 11, 1977, the practicum participant, in conjunction with the high school administration, presented a written report to the School Committee which summarized the on-going development of the 1977-1978 master high school student schedule. This report (see appendix F) showed the expected enrollment

of each department as of that date, and it demonstrated the results of the expanded capacity of the five curriculum areas designated earlier in table 2 to accept students. The percentage enrollment increases, as stated above under the evaluation of Objective One, were achieved within the guidelines deemed acceptable for Objective Three. These anticipated enrollment figures are shown in table 3.

The slight deviation in the enrollment figures by department and the total actual enrollment reported by the high school on September 30, 1977, reflects the fact that some students are taking double courses in English. Some are required to "double-up" to rectify previous failures, while others elect to take two semester courses in certain disciplines during the first semester only. Several of the bright ambitious students simply want to elect extra courses. This is allowed to the extent that their individual schedules will permit. It is possible, therefore, to appear to have more students in the English courses than are actually enrolled in the school. The official enrollment figure (1,355) reported earlier refers to individual persons in the total building; not to course enrollment.

Process Objectives

The successful completion of the practicum required that various organizational processes and tasks be performed. These included the formation and work of some committees and task study groups, appropriate progress reporting, planning, information dissemination, and purchasing of materials as

TABLE 3

WILMINGTON HIGH SCHOOL 1977-1978 STUDENT REGISTRATION
ENROLLMENT (ANTICIPATED) BY DEPARTMENT
(TAKEN FROM MAY 11, 1977
SCHEDULE SUMMARY)

	Eng.	Soc. Stud.	For. Lang.	Math	Sci.	Ind. Arts	Bus.	Home Econ.	Art	Music
Total Enrollment	1395	1114	655	1031	779	268	819	303	297	201
Av. Class Size	19	22	18	21	17	9	20	12	20	20
Class High	25	28	29	33	26	18	30	18	24	65
Class Low	12	10	8	7	5	8	3	7	7	2
Av. per Teacher	95	111	89	105	87	45	101	61	99	100
High Tch. Load	100	126	113	123	117	97	119	75	121	111
Low Tch. Load	86	95	71	64	75	22	88	40	80	90
Total No. Tchrs.	14.6	10	7.4	9.8	9	6	8	5	3	2
Sections	73	50	37	49	45	30	40	25	15	10

stated in six process objectives in chapter II.

In evaluating this project it must be noted that all of the activities were completed in sufficient time to allow the program to move forward to fruition. The nature and importance of the work of the advisory committees and support groups were discussed in chapter IV dealing with the execution of the practicum. The administrative tasks of generating adequate and appropriate involvement of others was important, but fairly routine.

CHAPTER VI

INSTITUTIONALIZATION

One of the advantages of involving the School Committee from the inception of the plan is that it develops "ownership" on the part of the individual members. They suffer through the growth of the project, analogous to expectant parents, and share the development of the project along with the setbacks.

This ownership helps to cement the institutionalization process. This renovation/conversion plan has become a permanent part of the Wilmington High School organization, and its influences are being realized in all of the areas cited earlier.

The School Committee has also been willing to commit to the project in phases. As described in chapter III, this introductory practicum is considered only the initial phase of a total plan. The Committee has entered into another phase for continuation. This approach seems wise, for as Casey points out,

> . . . a school or school district unsure about the feasibility of modernizing old buildings need not commit itself at the beginning to a full service study without some assurance that the renewal route is possible. Services can be phased, moving along as findings warrant.[4]

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[4]Ibid, p.11.

Another factor that influences the institutionalization of the project is the nature of the work involved. Tearing down walls and rewiring and plumbing rooms does not lend itself to reversing direction, or changing one's mind. It is impossible, or at least impractical, to put things back the way they were. That is why it is so important in a practicum such as this to plan well and to stimulate active involvement from all critical participants.

CHAPTER VII

SUMMARY AND CONCLUSIONS

It is evident to all who worked on this project that it is possible to restructure existing facilities to increase educational options for students without adversely affecting the capacity of the building. It is also clear that the task is always more difficult than it seems to be at the time of initiation. Everything seems to take longer to do or to get done than originally anticipated.

Renovation/conversion projects are fraught with dozens of little delays and setbacks that seemingly threaten to bring the whole program to a halt. Anyone considering embarking on this type of building alternative would do well to add fifty percent to the original estimate of time required for completion. As most building managers know, the common problems associated with such things as shortages or materials, availability of subcontractors, time required for bidding, municipal finance laws, local ordinances, and labor disputes all seem magnified when one gets personally involved in renovation to a public facility. Delays are inevitable and the wise developer will plan for them.

It is the conclusion of the writer that the practicum has succeeded in its original purpose. It has shown the community that another building option was available at a

substantial reduction in costs. It has succeeded in broadening the scope of the comprehensive educational programs available to a significant number of pupils by providing more space in several general education and creative arts programs, without sacrificing the space needs of the basic academic areas.

While this observation can only be considered purely subjective, the writer has noted and received several comments to the effect that the project has seemed to "turn the town around" on the subject of its schools. Talk of the schools is free of derision, and there appears to be a coming together of several enervating factions.

As mentioned in chapter VI, the School Committee too has set out with a new purpose by institutionalizing and continuing the project. This, together with the natural general decline in enrollment that is being experienced in most communities in the geographical area, appears to bode well for the educational building requirements in Wilmington for at least the next two decades.

EASTERN MASSACHUSETTS

ESSEX

MIDDLESEX

NORFOLK

SUFFOLK

PLYMOUTH

BRISTOL

MASSACHUSETTS BAY

BOSTON

Lawrence

Lynn

Quincy

Brockton

Attleboro

Legend

INTERSTATE 90

U. S. ROUTES 3

STATE ROUTES 28

PROPOSED ROUTES

State Boundaries

County Boundaries

Township Boundaries

Scale of Miles

0 5 10 15 20 25

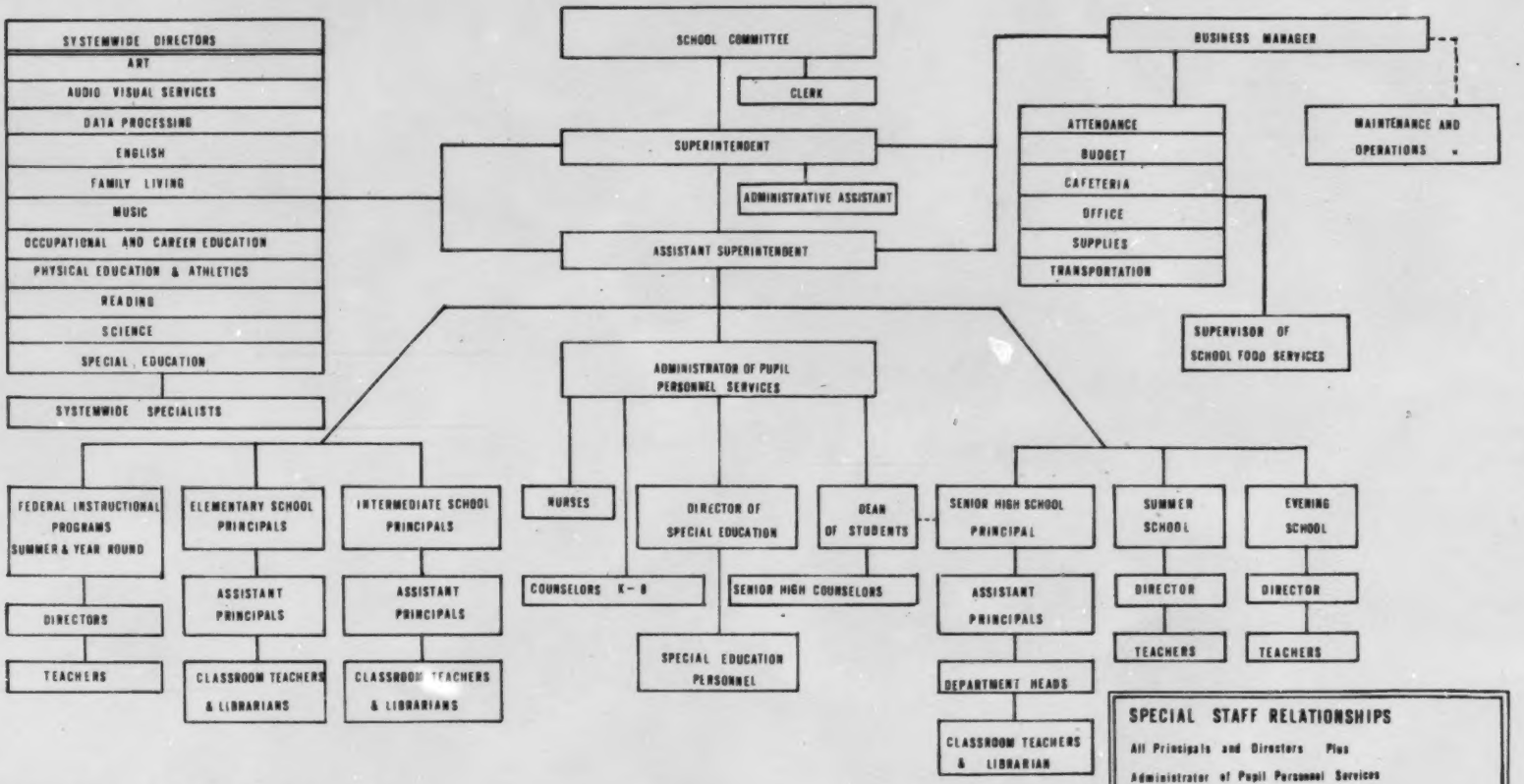
COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

April 1973

ADMINISTRATIVE ORGANIZATION

-PROFESSIONAL PERSONNEL-

WILMINGTON PUBLIC SCHOOLS
WILMINGTON, MASSACHUSETTS



KEY: LINE RESPONSIBILITY
- - - - - - - STAFF RESPONSIBILITY

* Advisory capacity only. The town manager has responsibility for this function.

APPENDIX B

APPENDIX C

WILMINGTON PUBLIC SCHOOLS
WILMINGTON, MASSACHUSETTS

1975 Grade K-12 Enrollment Data

Date October 1, 1975

rades	K	1	2	3	4	5	6	7	8	9	10	11	12	Spc	Total
dergarten	335														✓ 335
well School		3 63	2 56	2 53	2 55	2 54									✓ 281
ker School		1 28	1 19	1 19										4	✓ 70
n Road School		2 46	2 47	2 41	2 48	2 44								8	✓ 234
tefield Sch.		1 20	1 22	1 19	1 24										✓ 85
sheen School		3 65	3 79	3 74	4 94	4 100	8 205								✓ 617
n School						3 76	3 82							8	✓ 166
ell School		1 22	1 23	1 27	2 40										✓ 112
wood School		2 54	2 43	2 59	2 45	2 58	2 56							17	✓ 332
rn St. Sch.		4 104	4 97	4 110	4 114	5 116	5 128								✓ 669
Intermediate								8 226	8 228					9	✓ 463
Interm.								8 238	9 261					4	✓ 503
School										348	394	372	1pg 302		✓ 1417
otals	335	402	386	402	420	448	471	464	489	348	394	372	303	50	5284

1. Secretaries will call in enrollment figures by 10:00 a.m. on September 3, 4, 5, 8, and October 1. Please report number of sections per grade in upper right hand corner of the square, along with the total for the grade, except grades 9-12.

2. Balancing of classes, if indicated, should take place as soon as is practicable after the first day of school.

WILMINGTON PUBLIC SCHOOLS
WILMINGTON, MASSACHUSETTS

February 18, 1976

M E M O R A N D U M

To: Wilmington School Committee

From: Derek R. Little, Assistant Superintendent of Schools

Re: Renovation Priorities at Wilmington High School

If we were to follow through on our several discussions regarding a renovation program for the High School, it would be necessary to establish some priorities for action. As the Committee requested, I have discussed the matter with several administrators at recent meetings, and some of our thoughts might be in order during this time of budget deliberations.

It appears that over the next three (3) years the School Committee could consider making some extensive renovations to the existing high school utilizing its own funds in order to improve and upgrade our facilities and programs. This renovation could be necessary in order for us to improve our chances of receiving continued accreditation.

The cost of the total three-year program could come to approximately $220,000. During the first year, the Committee should consider setting aside $75,000 out of the 1976-1977 school budget to begin this program. Suggested first-year priorities might include the following:

a. Renovation and updating of the Graphic Arts equipment. This would be half of the required improvements to this area. The other half could be planned for the second year.

b. Renovation and acoustical work in the music room.

c. Replacement and restoration of our science laboratory storage and furnishings.

d. Development and furnishing of a resource room.

e. Replacement of cafeteria furniture.

f. Acoustical work in guidance areas.

g. Replacement of three to five rooms of classroom furniture.

During the second and third years, funds could be earmarked for such items as the replacement of several more classrooms of furniture, development of a language laboratory with related equipment, and improved communications and alarm systems. Other curriculum areas which should be considered for upgrading in the future include Art, Business Education, English, Home Economics, Mathematics, Reading, and Social Studies. The library is also a critical component of any improvement plan.

These thoughts should be kept in mind as we proceed with our budget discussions.

WILMINGTON PUBLIC SCHOOLS
WILMINGTON, MASSACHUSETTS

April 27, 1977

M E M O R A N D U M

To: School Committee and Superintendent of Schools

From: Derek R. Little, Assistant Superintendent of Schools

Subject: Reorganization of Non-Instructional Areas at Wilmington High School

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In order for us to achieve the maximum benefit from our planned renovation/conversion project at the High School, it will be necessary for us to gain some additional instruction space from areas that we are currently using for some non-instructional activities. We are hampered in our maximum use of the building by the disorganized storage plan and by the use of too many rooms as "holding stations" for students not involved in immediate formal instruction. The High School Principal and I have discussed several alternatives for improving our classroom utilization, and the plan presented here seems to be most feasible in terms of time and budget.

I, therefore, propose the following reorganization of non-instructional areas and programs without priority:

A. Eliminate regular music instruction from the auditorium. This can be accomplished by providing some acoustical treatment to the old music room which is now situated below the English rooms (Adams Street Wing) and adjacent to the Home Economics room. At present this room houses musical instruments and gets limited use for individual instrumental lessons (no percussion) and a cappella chorus, since anything else distracts other classes. Acoustical renovation here would allow band, orchestra, and chorus to be conducted at this station, and free the auditorium for study halls.

B. Move study halls to the auditorium and cafeteria (when available) and free up rooms 101, 103, 217, 229, 202, and 207 which are presently used for study periods at various times. Several of these rooms are adjacent to curriculum areas that could be expanded.

C. Eliminate individual departmental storage in favor of central building storage. This applies particularly to paper supplies and A-V equipment and materials. Each department with its own equipment room may be convenient, but it has become a luxury that the building can no longer accommodate.

D. Remove the wall between the power mechanics shop and the maintenance storage area. This will create another industrial arts teaching station, perhaps as an automative area.

E. Purchase new tables and chairs for the cafeteria. The old furniture needs replacing anyway, and circular tables and chairs will provide more effective seating for study during non-lunch periods.

F. Remove the non-bearing walls between Rooms 217, 225, and 101. Two of these could be added to the existing Science wing as laboratories and one could be given to the Art department for ceramics. With proper wiring and the installation of a kiln, that program capacity could be increased by 10 per cent.

G. Utilize the basement area more judiciously for custodial storage. The custodians now use six sub-standard rooms throughout the building for storage. Three of these (one in each wing) could be taken over by the Art, Science, and Business Education departments, freeing some of their current storage facilities for instruction. While unpopular with the maintenance department, this move alone could add space for two additional sections each in Art and Business Education by changing the location of the present copy center.

In summary, the non-instructional areas affected would be custodial and maintenance storage, individual department A-V storage, study halls, auditorium usage, and cafeteria availability. Instructional areas that would benefit most would be Art, Business Education, Industrial Arts, Music, and Science.

It is important that this plan be given consideration before the end of May to allow adequate time for summer planning and work. As always, I am available to discuss these and other ideas relative to the renovation project at your earliest convenience.

CC: Dr. George O. Eisenberg, Principal
All Advisory Committee Members

WILMINGTON PUBLIC SCHOOLS
WILMINGTON, MASSACHUSETTS

May 11, 1977

To: Wilmington School Committee

From: Derek R. Little, Assistant Superintendent
George O. Eisenberg, Principal

Subject: 1977-1978 Master Schedule Summary

This report to the School Committee is a summary of the data gathered from the second computer run on the high school master schedule. Although this is not the final tally, the Committee may wish to consider the anticipated enrollment spread in its deliberations about staffing and facilities development for the coming academic year.

As always, we will be pleased to discuss this schedule in detail with the Committee at its earliest convenience.

Department Registration (As of April 29, 1977)

	Eng.	Soc. Stud.	For. Lang.	Math	Sci.	Ind. Arts	Bus.	Home Econ.	Art	Music
Total Enrollment	1395	1114	655	1031	779	268	810	303	297	201
Av. Class Size	19	22	18	21	17	9	20	12	20	20
Class High	25	28	29	33	26	18	30	18	24	65
Class Low	12	10	8	7	5	8	3	7	7	2
Av. per Teacher	95	111	89	105	87	45	101	61	99	100
High Tch. Load	100	126	113	123	117	97	119	75	121	111
Low Tch. Load	86	95	71	64	75	22	88	40	80	90
Total No. Tchrs.	14.6	10	7.4	9.8	9	6	8	5	3	2
Sections	73	50	37	49	45	30	40	25	15	10

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